

an inert gas supply source to the first reaction gas supply line; a second inert gas supply line for supplying the inert gas from the inert gas supply source to the second reaction gas supply line; an exhaust line for exhausting the gas from the reactor to the outside; and a cleaning gas supply line connected to the first reaction gas supply line for supplying a cleaning gas for cleaning the reactor. Here, the cleaning gas is ClF₃.

Preferably, the cleaning gas supply line includes: a cleaning gas mass flow controller (MFC) for controlling the flow of a supplied cleaning gas; and at least one valve for allowing or blocking the flow of the cleaning gas. Also, preferably, the cleaning gas supply line further includes a filter for filtering out foreign materials existing within the cleaning gas.

To achieve the above objective, the present invention provides a cleaning method for ALD thin film deposition equipment having a reactor including a reactor block on which a wafer is mounted, a wafer block installed within the reactor block, on which the wafer is seated, and a diffusion plate having a plurality of spray holes formed over the wafer block and a plurality of nozzles slanted toward the inner sidewall of the reactor block to spray a gas toward the edges of the wafer block. This cleaning method includes a main cleaning process performed in a state where no wafers are received within the reactor, for spraying a mixture of a cleaning gas and an inert gas onto the wafer through the spray holes and spraying an inert gas toward the edges of the wafer block through the nozzles.

Preferably, this cleaning method further includes a sub cleaning process performed in a state where no wafers are received within the reactor, for pulse-introducing the cleaning gas into the reactor to induce instantaneous diffusion due to a pressure fluctuation. Also, preferably, this cleaning method further includes a pre-coating process performed in a state where no wafers are received within the reactor, for adhering fine particles remaining within the reactor to the inside surface of the reactor.